PENDING CLAIMS:

The currently pending claims, as originally filed, are provided as follows:

1. A method of constructing a lookup table of modes for encoding data for transmission in a wireless communication channel from a transmit unit to a receive unit, said method comprising:

a) selecting at least one quality parameter of said data as received by said receive unit;

b) determining a first-order statistical parameter of said at least one quality parameter;

c) determining a second-order statistical parameter of said at least one quality parameter; and

d) arranging said modes in said lookup table based on said first-order statistical parameter and based on said second-order statistical parameter.

2. The method of claim 1, wherein said first-order statistical parameter and said second-order statistical parameter are determined from a simulation of said wireless communication channel.

3. The method of claim 1, wherein said first-order statistical parameter and said second-order statistical parameter are determined from a field measurement of said wireless communication channel.

4. The method of claim 1 further comprising:

a) selecting a communication parameter;

b) setting a target value of said communication parameter; and

c) arranging said modes in said lookup table based on said target value.

5. The method of claim 4, wherein said communication parameter is selected from the group consisting of bit error rate, packet error rate, data capacity, signal quality, spectral efficiency and throughput.

6. The method of claim 4, wherein said communication parameter is a statistical communication parameter.

7. The method of claim 4, further comprising:

a) measuring a measured value of said communication parameter in said wireless communication channel;

b) assigning an adjustment to at least one of said first-order statistical parameter and said second-order statistical parameter based on a difference between said measured value and said target value.

8. The method of claim 1, wherein said quality parameter is a short-term quality parameter.

9. The method of claim 8, wherein said second-order statistical parameter comprises a variance of said short-term quality parameter.

10. The method of claim 9, wherein said variance is selected from the group consisting of temporal variance and frequency variance.

11. The method of claim 8, wherein said short-term quality parameter is selected from the group consisting of signal-to-interference and noise ratio, signal-to-noise ratio and power level.

12. The method of claim 1, wherein said first-order statistical parameter comprises a mean of said at least one quality parameter.

13. The method of claim 1, wherein said second-order statistical parameter comprises a variance of said at least one quality parameter.

14. The method of claim 13, wherein said data is transmitted at more than one frequency and said variance is a frequency variance.

15. The method of claim 13, wherein said data is transmitted in a multi-carrier scheme and said variance is a frequency variance.

16. The method of claim 13, wherein said variance is a temporal variance.

17. ***Please cancel claim 17.***

18. A storage medium tangibly embodying a lookup table of modes for encoding data for transmission in a wireless communication channel from a transmit unit to a receive unit, said storage medium comprising instructions for:

a) selecting at least one quality parameter of said data as received by said receive unit;

b) determining a first-order statistical parameter of said at least one quality parameter;

c) determining a second-order statistical parameter of said at least one quality parameter; and

d) arranging said modes in said lookup table based on said first-order statistical parameter and based on said second-order statistical parameter.